

Natural 3.1.5 Release Notes - Changes, Enhancements, New Features

This document covers the following topics:

- **Natural Turbo Performance Plug-In New**
 - Global Buffer Pool Operating Program Changed
 - Buffer Pool Manager Enhanced
 - Buffer Pool Cache **New**
 - Buffer Pool Management Utility SYSBPM Enhanced
 - Program Loader Enhanced
 - Default Database Type Changed
 - Natural System Variables, New Values
 - Natural Profile Parameters, New/Changed Values
 - Version Check at Session Initialization Refined
 - Version Check for Module NATCONFIG Introduced
 - Length Calculation for Edit Masks With Leading Filler Character Corrected
 - Adabas TID Generation Changed for X48 Communication
 - Natural Remote Procedure Call
 - Delivery of Assembler Macros of Type E Discontinued
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Natural Turbo Performance Plug-In New

With Natural Version 3.1.5, the Natural turbo performance plug-in is generally available for the operating systems OS/390, VSE/ESA, BS2000/OSD and VM/ESA (except the buffer pool cache for VM/ESA).

Significant performance improvements are provided by the following features:

- a new buffer-pool search algorithm reduces the time required to search for an object in the buffer pool,
- a buffer-pool cache reduces system file access,
- using the Adabas multi-fetch option speeds up the process of loading objects into the buffer pool.

The performance plug-in must be explicitly enabled to become functional. This is done with the PLUGIN parameter.

Global Buffer Pool Operating Program Changed

The operation of the parameter IDLE has been changed for OS/390. As a consequence, this parameter setting is ignored when a task does not own a buffer-pool cache. This means that a MODIFY operator command is executed immediately when issued.

If the task owns a buffer-pool cache, this parameter now specifies the number of seconds to elapse before the GBP operating program checks for each buffer-pool cache if its associated buffer pool is still active.

For this reason, the default value of the IDLE parameter has been changed to 60 seconds. If you specify this value explicitly, you are recommended to set a value of at least 60 seconds.

Buffer-Pool Manager Enhanced

The enhanced buffer-pool manager is activated by setting the Natural parameter PLUGIN to BP.

Objects residing in the buffer pool are located using a new search algorithm based on a hash table. This eliminates one of the most important performance bottlenecks, especially for environments using very large buffer pools (30 MB and more).

The more objects are loaded in the buffer pool, the higher is the saving of CPU time using the enhanced buffer-pool manager.

Buffer-Pool Cache New

The buffer-pool cache is an optional feature. Objects residing in the buffer pool which have to be replaced by another object due to missing space are cached in a data space. A subsequent load request for this object will be satisfied directly from the buffer-pool cache. This reduces significantly the system file accesses, especially for rather small buffer pools or for sites using very large Natural objects.

Note:

The buffer pool cache is available in conjunction with a global buffer pool only. It is not available with VM/ESA.

If the size of the Natural global buffer pool is restricted due to any system requirements, expand the buffer pool by allocating a data space, which will be handled as a caching area.

Buffer-Pool Management Utility SYSBPM Enhanced

The enhanced utility SYSBPM offers additional statistical information. In addition, it offers special statistic information about the new buffer-pool cache.

With the enhanced utility, it is possible to monitor buffer pools initialized by the enhanced buffer-pool manager, however, additional statistical information made available by the enhanced buffer-pool manager is displayed only if the profile parameter `PLUGIN=BP` is **not** specified.

If a cache is used, the item "Total use" displayed in the "Object Directory Information" screen and the item "Total" displayed in the "Individual Object Statistics" screen are not lost if the object is removed from the buffer pool and saved to the cache. Therefore, these values indicate the number of uses of this object since it was loaded from the system file. In addition, the load time displayed in the "Object Directory Information" screen is preserved, and constitutes the load time when the object was loaded from the system file. The "Total use" and "Total" counts can now be considerably higher than without cache.

Program Loader Enhanced

The enhanced program loader is activated by setting the Natural parameter `PLUGIN` to `PL`.

The enhanced program loader uses the Adabas multi-fetch option to significantly reduce the number of Adabas calls necessary to load a Natural object.

The more objects are loaded into the Natural buffer pool and the larger the objects are, the higher the saving of Adabas calls.

If parameter `PLUGIN=PL` is specified, the values specified for the `CFWSIZE` parameter (default is 32 KB) is automatically increased by 16 KB. Adapt your threadsizes accordingly, if need be.

Default Database Type Changed

With Natural Version 3.1.5, the default database type changes from Adabas Version 5 to Adabas Version 7. This applies to the DB profile parameter and to the NTDB macro. Adabas Version 7 is supported to the same extent as of Adabas Version 6.2, new functionality will be supported only as of Natural Version 4.1.

Natural System Variables, New Values

To enable the use of a Natural Development Server for Natural's Single Point of Development, new values have been introduced for the following system variables:

System Variable	New Value
*TPSYS	SERVSTUB
*SERVER-TYPE	DEVELOP

Natural Profile Parameters, New/Changed Values

- New Value ASYL for Profile Parameter TTYPE
- Maximum Value for Profile Parameter MT Changed
- Maximum Value for Profile Parameter TSIZE Changed
- New Value for Profile Parameter ADAMODE
- New Parameter LBPNAME for Sharing Local Buffer Pools under OS/390 Batch and TSO

New Value ASYL for Profile Parameter TTYPE

A new value ASYL has been provided for the Natural profile parameter TTYPE. This allows you to start an asynchronous Natural session under CICS that writes line-oriented output to the SENDER destination.

TTYPE=ASYL is a combination of TTYPE=ASYN (the default for an asynchronous session) and TTYPE=BTCH. Like BTCH, the output is line-oriented, but like ASYN, the *DEVICE system variable is set to ASYNCH.

TTYPE=ASYL allows you to write test output (e.g. in a Natural RPC server environment) to the primary report that is assigned to a list dataset.

Maximum Value for Profile Parameter MT Changed

The maximum value for the profile parameter MT has been changed from 86399 to 9999999 to be compatible with the maximum value for the session parameter MT. This parameter only applies to programs executed in batch mode or under TSO. It determines the maximum amount of CPU time which can be used by a Natural program.

Note: If this parameter is specified from within Natural Security, the maximum value is 32767. This will be changed with Natural Version 4.1 to comply with the maximum value of the profile and session parameter MT.

Maximum Value for Profile Parameter TSIZE Changed

The maximum value for the profile parameter TSIZE has been changed from 64 to 128. This parameter determines the size of the buffer to be used for the Adabas Text Retrieval facility.

New Value for Profile Parameter ADAMODE

A new value "3" has been provided for the Natural profile parameter ADAMODE. This allows you to start Natural with one UQE using Adabas X48 communication for nucleus calls and one UQE for application calls to include database calls sent by 3GL programs into Natural application transactions.

This enhancement makes the special purpose zap NA42023 obsolete.

New Parameter LBPNAME for Sharing Local Buffer Pools under OS/390 Batch and TSO

When running multiple NATURAL sessions under OS/390 in a batch or TSO environment concurrently, for example, using a Natural RPC, each session allocates storage for separate local buffer pools. Except for the Natural OS/390 batch server, the local buffer pools are not shared, that is, if the different sessions use the same Natural objects, these have to be loaded once for each session.

With Natural Version 3.1.5, it is possible to generate the Natural OS/390 batch and TSO front-end modules NATOS and NATTSO to share local buffer pools. The sharing of local buffer pools is controlled by the new generation macro parameter LBPNAME. For details see Installing the Natural TSO Interface or Natural in Batch under OS/390.

Version Check at Session Initialization Refined

With Natural Version 3.1.5, the check for matching versions of the Natural nucleus and the FNAT system file has been refined. To prevent unpredictable errors during session execution, any attempt to start a Natural Version 3.1 nucleus with a Natural Version 2.3 FNAT system file will be rejected.

Version Check for Module NATCONFIG Introduced

With Natural Version 3.1.5, a check for matching versions of the Natural nucleus and module NATCONFIG has been introduced. To prevent unpredictable errors during session execution, any attempt to start a Natural Version 3.1.5 nucleus with a NATCONFIG module from a previous system maintenance (SM) release will be rejected.

Note: If you adapted an existing NATCONFIG module for your own purposes, you cannot continue using that module, but have to transfer your changes to the new NATCONFIG source before you assemble and link NATCONFIG as described in the corresponding installation description.

Length Calculation for Edit Masks With Leading Filler Character Corrected

With Natural Version 3.1.5, leading filler characters specified in edit masks for numeric operands are no longer counted as being part of the edit mask. This may reduce the output length of numeric fields with an associated edit mask so that following output in the same line is shifted one position to the left. To apply the correction to an existing object, it must be cataloged with Natural Version 3.1.5.

Example:

```
P(P3) = -12
DISPLAY P (EM=-*ZZZ)Output before Natural Version 3.1.5:
  P
  -----
  -12
Output with Natural Version 3.1.5:
  P
  ----
  -12
```

Adabas TID Generation Changed for X48 Communication

With Natural Version 3.1.5, the value of the generated Adabas TID (the last 8 positions of the global communication ID) will be independent of the value specified for the ADAMODE profile parameter.

This enhancement makes special purpose zap NA42024 obsolete.

Natural Remote Procedure Call

New User Exit NATRPC01

The Natural RPC does not offer the possibility to use an error transaction on the server side. Although it is possible to define an error transaction, control will never be passed in the event of an error. Instead of using an error transaction, you can now use the new user exit NATRPC01 (described in the Natural Remote Procedure Call documentation).

New User Exit USR2032N

With the new user exit USR2032N, Natural provides the same functionality as an EntireX client, that is, the commit option is set for the next CLOSE CONVERSATION statement. This means that an implicit END TRANSACTION is issued on the server side when the conversation is closed.

This enables you to write an application on the server without using explicit END TRANSACTION statements, this application being callable from a Natural client as well as from an EntireX client.

The user exit has to be called before the next CLOSE CONVERSATION statement is executed.

Support of CSCPATT Parameter Discontinued

As the CSCI transport protocol is no longer supported, the CSCPATT parameter of the NTRPC macro will be rejected with Natural Version 3.1.5. The CSCPATT subparameter of the RPC profile parameter will be ignored.

The value CSCI will be rejected if specified as transport protocol for the DFS, RDS or TRANSP parameters of the NTRPC macro or for the DFS, RDS or TRANSP subparameters of the RPC profile parameter.

Delivery of Assembler Macros of Type E Discontinued

With Natural CICS Interface Version 2.3.6, Natural for DL/I Version 2.3.6, Natural for VSAM Version 2.4.6 and Entire Review Natural Monitor Version 3.6.1, delivery of assembler macros of Type E has been discontinued for VSE installations.